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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/783,061	02/20/2004	Vincent Sullivan	035510/303994(P-5972)	6766

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EXAMINER	
TONGUE, LAKIA J	

ART UNIT	PAPER NUMBER
1645	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/783,061	SULLIVAN ET AL.	
	Examiner	Art Unit	
	LAKIA J. TONGUE	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 May 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *71,76,77,79 and 80* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *71,76,77,79 and 80* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114 was filed in this application after appeal to the Board of Patent Appeals and Interferences, but prior to a decision on the appeal. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on May 5, 2008 has been entered.

Applicant's response filed on May 5, 2008 is acknowledged. Claims 71, 76, 77, 79 and 80 are pending. Claim 71 has been amended. Claim 78 has been canceled. Claims 71, 76, 77, 79 and 80 are under consideration.

Rejections Maintained

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. The rejection of claims 71, 76, 77, 79 and 80 under 35 U.S.C. 103(a) as being unpatentable over Maa et al. (U.S. 2002/0120228 A1) further in view of Sasaki et al.

(U.S. 2006/0024322 A1) is maintained for the reasons set forth in the previous office action. Cancellation of claim 78 renders the rejection of said claim moot.

Applicant argues that:

1) at no point does the '228 patent application publication teach or even suggest that at least 50% of the resultant population of discrete dried particles have a volume diameter with 80% of the mean, as recited in all of the pending claims. Applicant's of the '228 patent application explicitly state that "the average particle size of the powders according to the present invention can vary widely."

2) The '322 application uses a "cake" and not a collection of discrete particles.

3) In the instant case, neither of the cited references discloses, explicitly or implicitly, a particulate rSEB vaccine composition made by a method comprising the steps of atomizing a liquid rSEB formulation to produce an atomized formulation, freezing the atomized formulation to form solid particles, and drying the solid particles to produce discrete particles of the rSEB vaccine composition, wherein the discrete dried particles have a volume mean diameter within about 80% of the mean.

4) Evidence of secondary consideration such as unexpected results or unforeseen advantageous properties of the claimed particulate rSEB vaccine composition can rebut a *prima facie* case of obviousness.

Applicant's arguments have been considered, but are not deemed persuasive.

The rejected claims are drawn a particulate recombinant Staphylococcal enterotoxin B (rSEB) vaccine composition comprising discrete dried particles, wherein at least about 50% of the discrete dried particles have a volume diameter within about

80% of the mean.

With regard to Point 1, Maa et al. disclose that the particles of the invention have a size appropriate for high-velocity delivery to a subject. The mass mean aerodynamic diameter of the particles is from about 0.1 to 250 μm, preferably from 10 to 70 μm or from 20 to 70 μm (see paragraph 0058 and 0103). The particles disclosed in Maa et al. necessarily encompass at least 50% of the resultant population of discrete dried particles and have a volume diameter with 80% of the mean. Moreover, given that the diameter range is narrower than that of the instant invention (e.g. 35μm to 300μm), they would necessarily be more uniform in size.

With regard to Point 2, the '322 application was used as a secondary reference to show that rSEB vaccines are known in the art and are widely used. The reference was not used to demonstrate the process or the form in which the rSEB is to be used. The primary reference, Maa et al., taught all the limitations of the instant claims with the exception of the use of a recombinant Staphylococcal enterotoxin B. This deficiency was remedied by the Sasaki et al. reference.

Moreover, since all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention (KSR International Co. v. Teleflex inc., 500 U.S.-, 82 US{Q2d 1385 (2007). Moreover, KSR forecloses the argument that a **specific** teaching, suggestion, or motivation is required to support a finding of

obvious. See the recent Board decision *Ex parte Smith,--USPQ2d--*, slip op. at 20, (Bd. Pat. App. & Interf. June 25, 2007) (citing *KSR, 82 USPQ2d* at 1396).

With regard to Point 3, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., comprising the steps of atomizing a liquid rSEB formulation to produce an atomized formulation, freezing the atomized formulation to form solid particles, and drying the solid particles to produce discrete particles of the rSEB vaccine composition) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

With regard to Point 4, Applicant's assertion of unexpected results, Applicant has failed to provide evidence supporting said assertion. The MPEP states:

716.02(b) Burden on Applicant
BURDEN ON APPLICANT TO ESTABLISH RESULTS ARE UNEXPECTED AND SIGNIFICANT
The evidence relied up should establish "that the differences in results are in fact unexpected and unobvious and of both statistical and practical significance." Ex parte Gelles, 22 USPQ2d 1318, 1319 (Bd. Pat. App. & Inter. 1992) (Mere conclusions in appellants' brief that the claimed polymer had an unexpectedly increased impact strength "are not entitled to the weight of conclusions accompanying the evidence, either in the specification or in a declaration."); Ex parte C, 27 USPQ2d 1492 (Bd. Pat. App. & Inter. 1992) (Applicant alleged unexpected results with regard to the claimed soybean plant, however there was no basis for judging the practical significance of data with regard to maturity date, flowering date, flower color, or height of the plant.). See also In re Nolan, 553 F.2d 1261, 1267, 193 USPQ 641, 645 (CCPA 1977) and In re Eli Lilly, 902 F.2d 943, 14 USPQ2d 1741 (Fed. Cir. 1990) as discussed in MPEP § 716.02(c).
APPLICANTS HAVE BURDEN OF EXPLAINING PROFFERED DATA
"[A]ppellants have the burden of explaining the data in any declaration they proffer as evidence of non-obviousness." Ex parte Ishizaka, 24 USPQ2d 1621, 1624 (Bd. Pat. App. & Inter. 1992).

DIRECT AND INDIRECT COMPARATIVE TESTS ARE PROBATIVE OF NONOBVIOUSNESS

Evidence of unexpected properties may be in the form of a direct or indirect comparison of the claimed invention with the closest prior art which is commensurate in scope with the claims. See In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) and MPEP § 716.02(d) - § 716.02(e). See In re Blondel, 499 F.2d 1311, 1317, 182 USPQ 294, 298 (CCPA 1974) and In re Fouche, 439 F.2d 1237, 1241-42, 169 USPQ 429, 433 (CCPA 1971) for examples of cases where indirect comparative testing was found sufficient to rebut a prima facie case of obviousness. The patentability of an intermediate may be established by unexpected properties of an end product "when one of ordinary skill in the art would reasonably ascribe to a claimed intermediate the contributing cause' for such an unexpectedly superior activity or property." In re Magerlein, 602 F.2d 366, 373, 202 USPQ 473, 479 (CCPA 1979). "In order to establish that the claimed intermediate is a contributing cause' of the unexpectedly superior activity or property of an end product, an applicant must identify the cause of the unexpectedly superior activity or property (compared to the prior art) in the end product and establish a nexus for that cause between the intermediate and the end product." Id. at 479.

Additionally, 716.01(c) Probative Value of Objective Evidence TO BE OF PROBATIVE VALUE, ANY OBJECTIVE EVIDENCE SHOULD BE SUPPORTED BY ACTUAL PROOF

Objective evidence which must be factually supported by an appropriate affidavit or declaration to be of probative value includes evidence of unexpected results, commercial success, solution of a long-felt need, inoperability of the prior art, invention before the date of the reference, and allegations that the author(s) of the prior art derived the disclosed subject matter from the applicant. See, for example, In re De Blauwe, 736 F.2d 699, 705, 222 USPQ 191, 196 (Fed. Cir. 1984) ("It is well settled that unexpected results must be established by factual evidence." "[A]ppellants have not presented any experimental data showing that prior heat-shrinkable articles split. Due to the absence of tests comparing appellant's heat shrinkable articles with those of the closest prior art, we conclude that appellant's assertions of unexpected results constitute mere argument."). See also In re Lindner, 457 F.2d 506, 508, 173 USPQ 356, 358 (CCPA 1972); Ex parte George, 21 USPQ2d 1058 (Bd. Pat. App. & Inter. 1991).

ATTORNEY ARGUMENTS CANNOT TAKE THE PLACE OF EVIDENCE

The arguments of counsel cannot take the place of evidence in the record. In re Schulze, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965). Examples of attorney statements which are not evidence and which must be supported by an appropriate affidavit or declaration include statements regarding unexpected results, commercial success, solution of a long-felt need, inoperability of the prior art, invention before the date of the reference, and allegations that the author(s) of the prior art derived the disclosed subject matter from the applicant.

As previously presented, Maa et al. disclose a particulate composition made by a method comprising atomizing the suspended vaccine composition into liquid nitrogen, which acts as a heat transfer agent and provides rapid freezing of the suspension. The atomization reduces the volume of each droplet to be frozen and the combined effect causes extreme freezing of very small droplets of suspension and leads to the formation of smaller ice crystals in the solid (see paragraph 0015). Moreover, Maa et al. disclose that any suitable antigen may be employed. The antigen may be viral or bacterial antigens derived from organisms that cause, for instance, Staphylococcus (see paragraphs 0091 and 0093). Maa et al. further disclose that the particles of the invention have a size appropriate for high-velocity delivery to a subject. The mass mean aerodynamic diameter of the particles is from about 0.1 to 250 μm, preferably from 10 to 70 μm or from 20 to 70 μm (see paragraph 0103). The instant specification discloses that the claimed method and composition made by the method are referred to as "spray-freeze-dried" (see specification at page 7, lines 1 and 2). Maa et al. disclose that the method and composition made by the method are referred to as "spray-freeze-dried", therefore the limitations of "having a volume mean diameter of 35 μm and about 300 μm; 50 μm and about 100 μm, and at least about 50% of said discrete dried particles have a volume diameter with in about 80% of the mean would necessarily be met because the compositions are identical and are produced by the same method step.

Maa et al. does not specifically disclose that the composition is a recombinant Staphylococcal enterotoxin B vaccine composition.

Sasaki et al. disclose recombinant Staphylococcal enterotoxin B (SEB) formulated into prophylactic remedies. Sasaki et al. disclose that the vaccine may be in a lyophilized form (see paragraph 0048).

Thus, it would have been obvious to one having ordinary skill in the art to use recombinant Staphylococcal enterotoxin B as taught by Sasaki et al. because it is a well-known bacterial super antigen which provides prophylactic remedies because of its inhibitory activity on T cell activation (see Sasaki et al., paragraph 0004) as shown in Maa et al., which discloses that antigens can be isolated directly from whole killed, attenuated or inactivated bacteria, viruses, parasites or other microbes may be employed, as well as be produced recombinantly using known techniques (see Maa et al. paragraph 0094). Since the compositions are the same they would necessarily have the same immunological results.

New Grounds of Objection/Rejection

Claim Objections

2. Claims 76, 77, 79 and 80 are objected to because of the following informalities: "μM" as claimed means micromolar. Applicant should have "μm", which indicates length. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the

art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 71, 76, 77, 79 and 80 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

Applicant has amended claim 71 to recite "discrete dried particles". This phrase does not appear in the specification, or original claims as filed. Applicant does not point out specific basis for this limitation in the application, and none is apparent. Applicant points said pages 6 and 9 as well as the original claims for support for said amendment. Page 6 discloses preparing dried pharmaceutical compositions, in particulate form, however, pages 6 and 9 and original claims do not disclose anything regarding the recited amendment.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 71, 76, 77, 79 and 80 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 71, 76, 77, 79 and 80 are rendered vague and indefinite by the use of the terms “discrete dried particle”. It is unclear what is meant by said terms, as it is not explicitly defined in the specification. What constitutes a “discrete dried particle”? How

does a discrete dried particle differ from a dried particle? As written, it is impossible to determine the metes and bounds of the claimed invention.

Conclusion

5. No claim is allowed.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAKIA J. TONGUE whose telephone number is (571)272-2921. The examiner can normally be reached on Monday-Friday 8-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shanon Foley can be reached on 571-272-0898. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov.

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automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LJT
6/12/08

/Robert A. Zeman/
for Lakia J. Tongue, Examiner of Art Unit 1645
June 23, 2008